SEMESTER END EXAMINATION APRIL-MAY,2026

Course Name: - B.Tech Semester:-2ND

Paper Name: - FUNDAMENTAL OF ELECTRICAL & ELECTRONICS ENGINEERING Paper Code:-NES-202

Time - 3 Hrs + 20 minutes per hour extra time for V.I. & examinees with writer. Max Marks-70

Instructions:

- The question paper consists of three sections namely A, B, C. All sections are compulsory.
- Section A- Each question carries **3 mark. All questions are compulsory.**
- Section B- Answer any **5 out of 7** given questions. Each question carries **7 marks.**
- SectionC- Answer any **2 out of 3** given questions. Each question carries **10 marks.**

Section – A
Objective Questions

1. Answer all the following questions. 5x3 =15

i) Which type of flux does transformer action need?
a) Alternating electric flux
b) Alternating magnetic flux
c) Increasing magnetic flux
d) Constant magnetic flux

ii) What is the function of a breather in a transformer?
a) To arrest flow of moisture when outside air enters the transformer
b) To cool the transformer oil
c) To provide oxygen inside the tank
d) To cool the coils during reduced load

iii) The part in Dc machine that carries the field winding is.....
a) Rotor
b) Stator
c) Armature
d) Commutator

iv) The purpose of pole shoe in a DC machine is-
a) Decrease reluctance
b) Support field coils
c) Increase cross section area of magnetic circuit
d) All of above

v) What will be the current density of metal if a current of 30A is passed through a cross-sectional area of 0.5m2?
a) 7.5 A/m2
b) 15 A/m2
c) 60 A/m2
d) 120 A/m2

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Section - B
Short Answer Questions

2. Answer any five of the following questions. 5x7=35

i. What is Hall Effect? Discuss the formula for Hall voltage.

ii. Draw the constructional diagram of electrical machine. State all essential parts of electrical machine.

iii. Discuss the analogy of electrical and magnetic circuit with suitable diagram .

iv. State following: a)Thevenin's theorem b)Superposition Theorem

v. Draw schematic diagram of transformer and discuss the function of each parts.

vi. Explain the concept of transistor with its symbol and circuit diagram. Also discuss ots various types.

vii. What is zener diode? Draw its characteristics and explain it.

Section - C
Descriptive Questions

3. Answer any two of the following question. 2x10=20

i) How the conversion of star to delta and vice versa is done in an electric circuit.

ii) Derive the EMF equation of generator . Calculate the EMF generated by a 6 pole, 1200rpm lap wound DC generator.The magnetic flux produced per pole is 7 wb and there are 150 conductors.

iii) Derive the torque equation of dc motor. A 220 V, 4-pole series motor with 600 conductors wave-connected supplying a load of 7.5kW by taking 35 A from the motors. Calculate the developed torque, if the flux per pole is 15 mWb.

Umar Naseem
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11-05

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